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JULY 14, 2020

# Best New RFID Products of 2020: PervasID's Flow Ranger and Printronix Auto ID's T6000e RFID Printer

FEATURED COMPANIES



# Today's Presenters



## Sabesan Sithamparanathan Founder and CEO, PervasID

Sabesan founded PervasID in 2011, based on his PhD research, begun in 2007, into 'Passive RFID real time sensing system for intelligent infrastructure' at Cambridge University. He was awarded the 2011 Royal Academy of Engineering Entrepreneurs Award and the UK ICT Pioneers of Connected World award for his RFID breakthroughs. Subsequently he was elected to a Research Fellowship at Girton College, Cambridge, and in 2014 was awarded a Royal Academy of Engineering Enterprise Fellowship. Since then he has been awarded the Royal Academy of Engineering's Young Engineer of the Year award, as well as the Sir George Macfarlane Medal 2016.

# Today's Presenters



## Chris Brown RFID Subject Matter Expert Printronix Auto ID

Chris Brown is an AIDC industry veteran. He started his journey in the industry in 1995, with Sunmar Container Lines, a logistics company. In 1998, he joined BarTender label software to establish their EMEA office and spent 20 years in Europe as General Manager of the operation. In 2019, Chris joined Printronix Auto ID to represent the company in the RFID market and align the company's commercial activities with the company's long-standing RFID expertise. Chris represents Printronix Auto ID in its work with the RAIN RFID Alliance, and he is a member of RAIN's Healthcare and Aviation workgroups. He is also a member of AIM's RFID Experts Group (REG).



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# RFID

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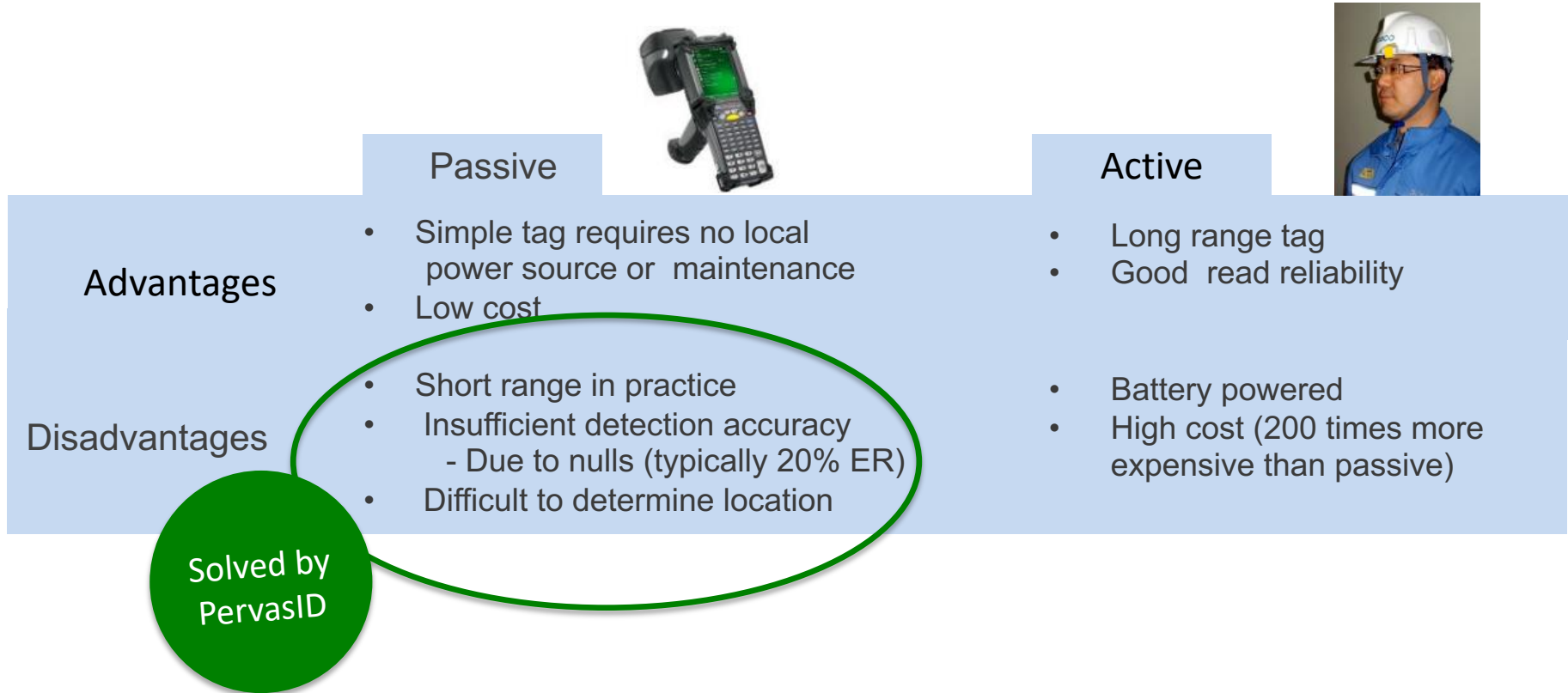
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# The World's Most Accurate Passive RFID Technology



# RFID - Historical Issues



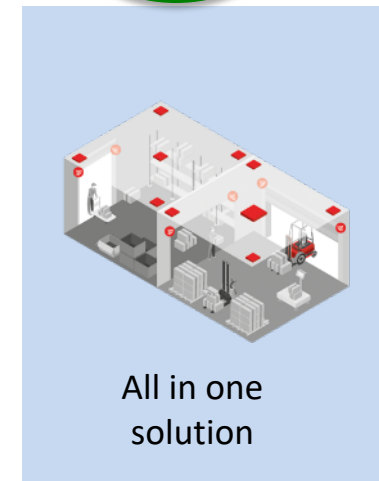
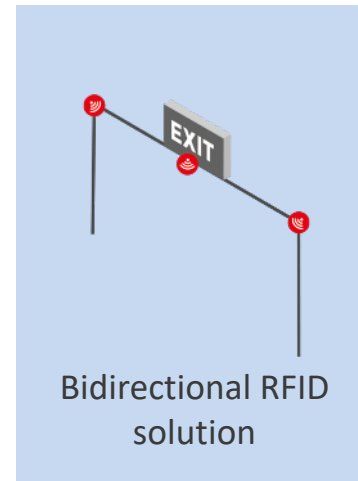
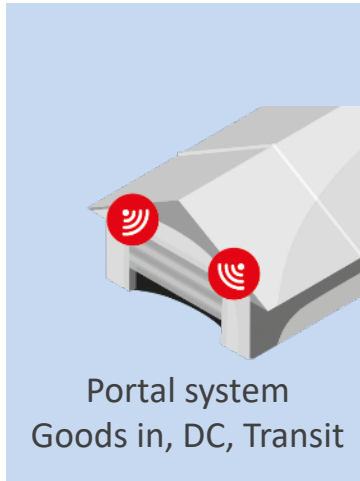
# The Result

Enables		PervasID		Industry Standard
Robust failsafe H&S inventory systems		ACCURACY - 99%+	VS	80%
Intelligent IoT		HIGH ACCURACY SPEED – 400 tags per second	VS	100 tags per second
Massive inventory management		RELIABLE READ RANGE - 20m	VS	2m
Full solution multifunctional delivery				

# Finally - There is a Solution

“A unique, passive fixed UHF RFID reader system for inventory or asset tracking, using patented DAS Technology”

**>99%**  
detection/direction  
accuracy in real time



# Finally - There is a Solution

Many installations globally in **retail**, **healthcare** and **industrial** including:



DeLaRue

Cambridge University Hospitals

NHS Foundation Trust



CRIBMASTER

Guy's and St Thomas'

NHS Foundation Trust



Imperial College Healthcare

NHS Trust



In these, PervasID has outperformed all other passive solutions

✓ **BEST PERFORMANCE**



# Passive Wide-Area RFID Solutions

## Space Ranger

- ✓ Unparalleled accuracy, speed and cost-effectiveness
- ✓ World leading 99%+ accuracy detection accuracy
- ✓ Real-time inventory tracking at item level
- ✓ Easy to install in wide range of environments with unlimited coverage
- ✓ Excellent ROI through hands-free inventory solution



# Case Study: Space Ranger

Number of tags 100,000  
Coverage area ~4,000 sq m  
Read accuracy 99%+  
Read time < 1 hour

Blue Chip Retailer



Number of tags 873 tags  
Coverage area ~10 sq m  
Read accuracy 100%  
Read time 6 seconds

Major industrial tool kit



Number of tags 150 tags  
Coverage area ~100 sq m  
Read accuracy 99%+  
Read time < 15 minutes

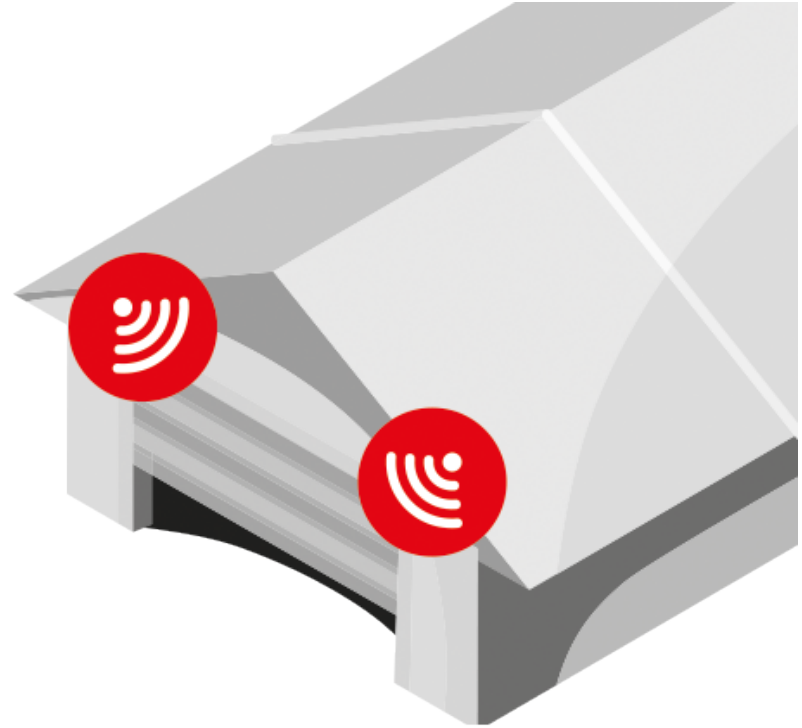
Hospital medical equipment library



# High Performing Passive RFID Portal Solutions

## Portal Ranger

- ✓ Automatic, 99%+ item tracking in Goods in & transition portals
- ✓ Tracks densely packed items at item level
- ✓ High detection even if tags are on difficult to read products
- ✓ Significantly reduces labour costs due to increased inventory accuracy, productivity, and item losses



# Case Study: Portal Ranger

- ✓ QUICK & SIMPLE INSTALLATIONS enabled reliable 99%+ accuracy
- ✓ Successful detection of both close packed and dispersed tags moving through portal door

Number of tags 123 tags  
Read accuracy 99%+  
Read time 3 seconds



Number of tags 60 tags  
Read accuracy 100%  
Read time 2 seconds



Number of tags 80 tags  
Read accuracy 99%+  
Read time 2 seconds

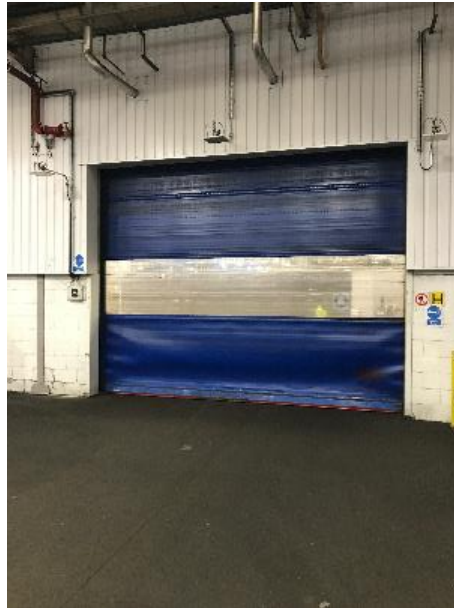
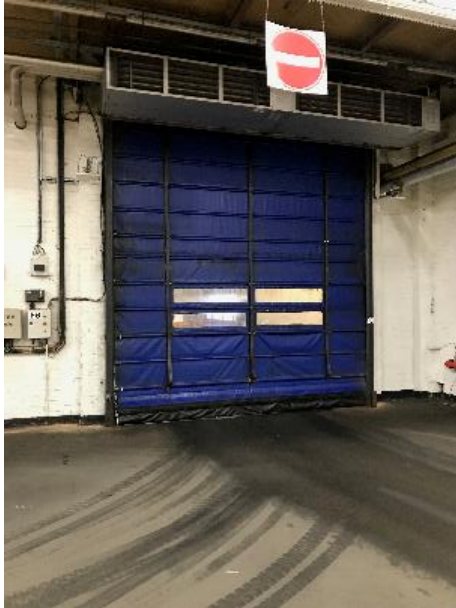


Number of tags 619 tags  
Read accuracy 99%+  
Read time 7 seconds



# Case Study: Portal Ranger

- ✓ 38 Dock Doors around the site

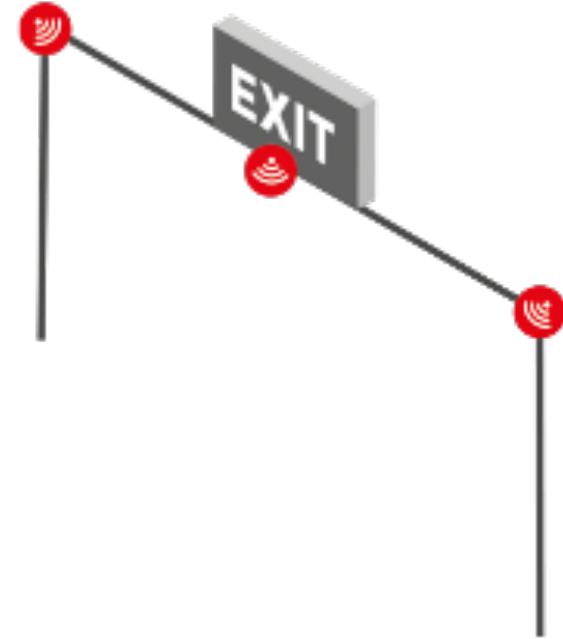


# Game Changing Passive Directional RFID Solutions

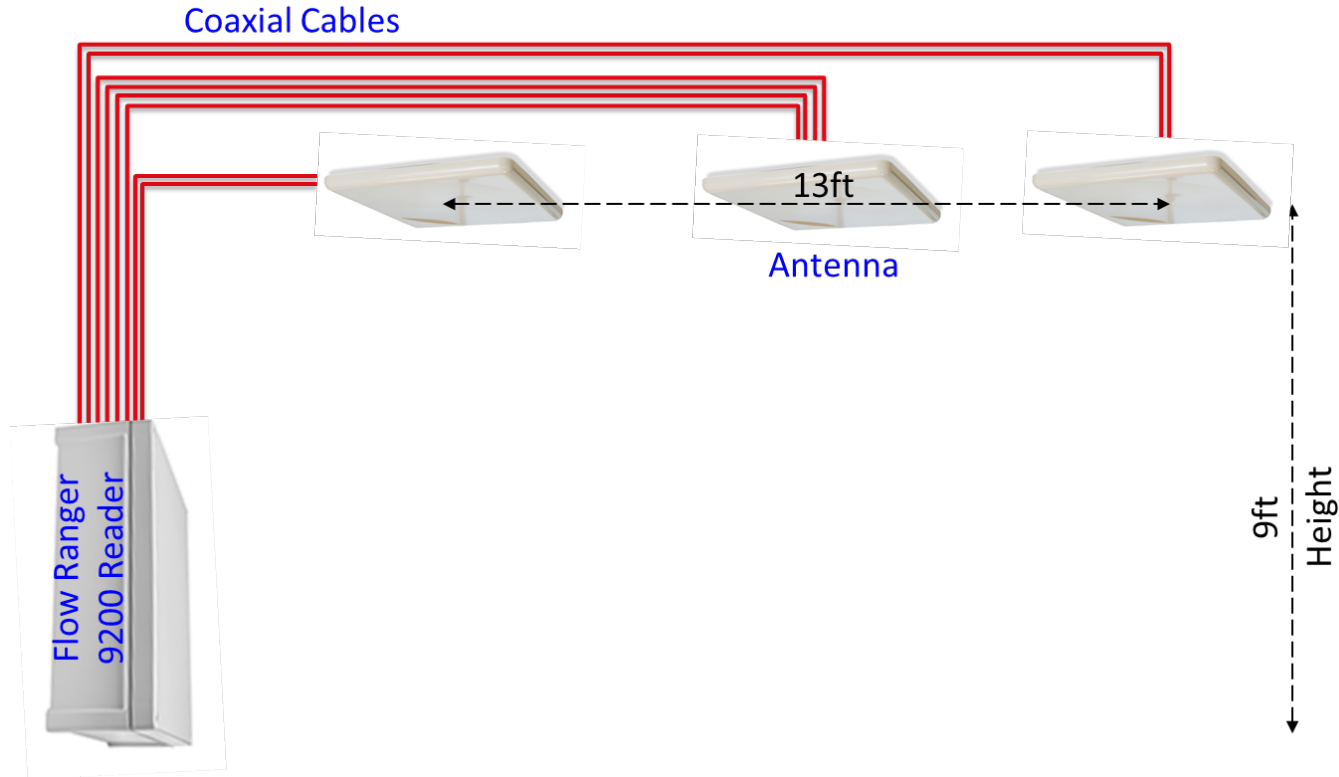
## Flow Ranger

- ✓ Only 1 reader covering up to 8m wide exit/entrance
- ✓ Automatic, 99%+ bidirectional item tracking in Goods in, transition portals etc
- ✓ Reduces body shielding, false alarms, and shrinkage
- ✓ The addition of 99%+ directional accuracy makes this a game changer
- ✓ Stray tag suppression of 0.5-1m makes this ideal for multi dock door and store entrance/exit applications

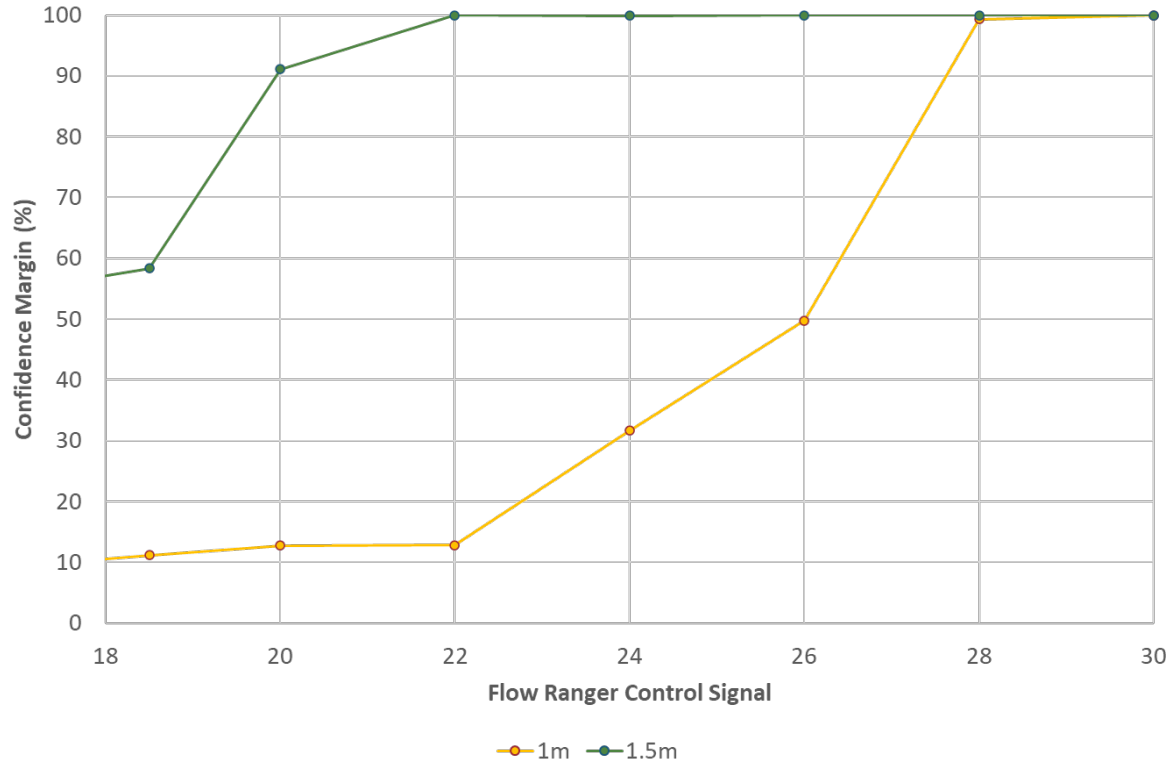
NEW this  
Year!



# Flow Ranger 9200 Demonstrator System



# Flow Ranger Demonstrator System Results








# The FIRST Multifunctional Fixed Reader RFID System

## Multi Ranger

- ✓ **ALL IN ONE** (Portal, Space & Flow Ranger Systems)
- ✓ **Reduces cost by a staggering 50%** as a single reader can be used to perform
  - item tracking in Goods in, transition portals
  - storage and sales area inventory tracking
  - bidirectional tracking of items moving through strategically placed directional ceiling readers located throughout the store
- ✓ Single system covers up to 200 - 300 sq m
- ✓ HIGH INDIVIDUAL PERFORMANCE MAINTAINED



# Competitor and Technology Summary

Competitors (Technology)	Reliable Read Range in standard tag density	Wide-area detection accuracy	Counting densely packed items on pallets	Location accuracy	Cost including installation (£/m2)	ROI <12 months?
 (DAS passive)	up to 20m	>99% challenging dense retail environment (>100tags/m <sup>3</sup> ) in near real time	Accurate	1-2m is possible, but today locate by cell/zone	Low	Yes Highest accuracy shortest time lowest cost
  <b>RF CONTROLS</b> (Phase array passive)	up to 10m	+80% reported by users	Medium	1-2m	Medium	Possible
(Conventional passive)	up to 2-5m	~60%	Poor	Defined by portal	Low for HH solution only	Yes for HH solution only

# And What Do Customers Say?

*"This is not just another overhead reader; this is the best and the only one able to meet requirements of safety critical applications including FOD (Foreign Object Debris) control"*

**- Larry Harper, President, Stanley CribMaster**

*"Only RFID reader "up to the challenge facing modern retailing"*

**- Major Tier 1 Retailer**

*"Prior to working with PervasID we were already working with the **top 6 manufacturers globally**, and yet none were able to provide a cost effective way to inventory dense RFID tag counts reliably over a wide area."*

**- Graham Fenton, CEO, Codegate**

*"It is great to see that the reader is picking up 100% of the equipment moves quickly and accurately."*

**- Bryan Hynd, Head of Medical Physics, NHS Forth Valley Hospital**

# Summary

## With the development of “Ground-Breaking PervasID Passive RFID technology”

- ✓ You can get 99%+ detection in Wide Area and in Portal Systems
- ✓ Even with a high density of tags & in difficult environments
- ✓ **99%+ bidirectional** item tracking and **stray tag suppression of 0.5-1m** make the **Flow Ranger** ideal for multi dock door and store entrance/exit applications
- ✓ The Multi Ranger System finally makes it cost effective to use fixed readers in retail
- ✓ Low Cost Passive RFID solutions can now replace Active RFID in Healthcare and Manufacturing

# THANK YOU

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Sabesan Sithamparanathan, CEO

Email: [ssabesan@pervasid.com](mailto:ssabesan@pervasid.com)

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JULY 14, 2020

# Printronix Auto ID T6000e RFID Industrial Printer



# T6000e RFID Industrial Printer

Standard Smart Label and On-Metal Tag Capabilities in One Printer

# Personal Introduction



## Chris Brown

RFID Subject Matter Expert

- 20+ years in the Auto ID industry
- Joined Printronix Auto ID in 2019
- Focused on RFID market and company's commercial activities with the company's long-standing RFID expertise
- RAIN RFID Alliance, Healthcare and Aviation workgroups
- Member of AIM's RFID Experts Group (REG)

Email: [RFID@PrintronixAutoID.com](mailto:RFID@PrintronixAutoID.com)

LinkedIn: [/in/chris-brown-rfid](https://www.linkedin.com/in/chris-brown-rfid)



# Agenda

- About TSC Printronix Auto ID
- Basic Definitions
- The Challenge: A single printer for both smart labels and on-metals
- Design and Construction
- Configurations and Options
- Advantages
- The T6000e in Action
- RFID Printer Line-up



## **TSC Printronix Auto ID** is a leading designer and manufacturer of innovative thermal printing solutions.

The company is comprised of two-industry-leading brands, TSC and Printronix Auto ID and has over 65 years of combined industry experience, strong local sales engineering support, and a history of continuous investment in new product development. TSC Printronix Auto ID is capable of quickly adapting solutions to meet the needs of customers, from small businesses to Fortune 500 companies.

**TSC Auto ID** offers budget-friendly desktop printers to high-performance industrial solutions including rugged mobile printers.

**Printronix Auto ID** offers premium, enterprise-level applications with a selection of high-end features including RFID encoding and integrated barcode verification.

TSC and Printronix Auto ID are proud members of the **TSC Auto ID Technology Company family**.

# Company Snapshot

29

Years in  
Auto ID Industry

5

A Top 5 Leader in the  
Auto ID Industry

\$200+

Annual Revenue  
(in Millions USD)

4 M

Printers installed  
globally

87

Patents

12

Years listed on the Taiwan  
Stock Exchange

100+

Countries we do  
business in globally

750

Employees  
worldwide

# Basic Definitions



**1. Smart Labels**



**2. On-Metals**

Image Sources:  
[onlinelabels.com](http://onlinelabels.com)  
[huayuansh.com](http://huayuansh.com)

# Basic Definitions



**3. RFID Printer**

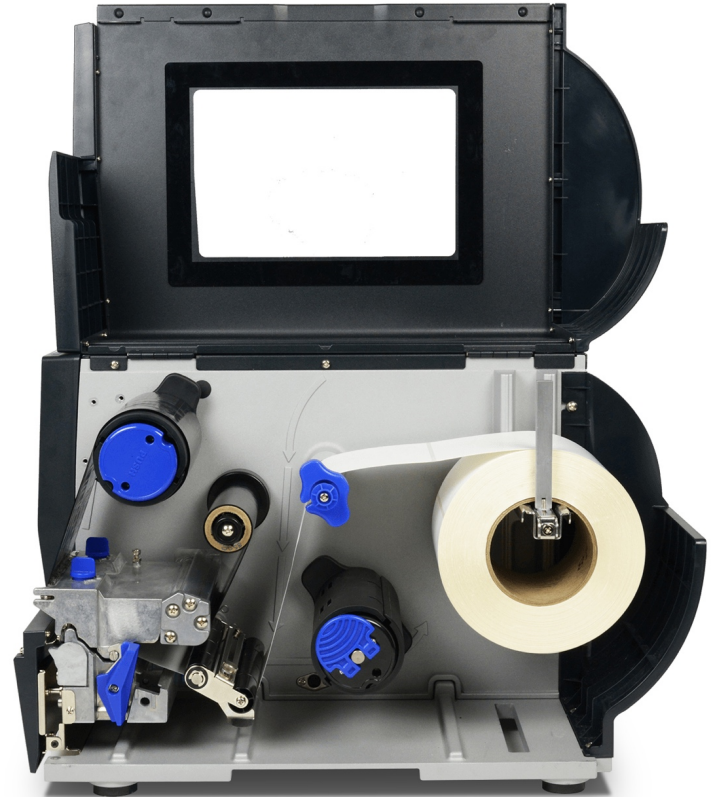


**4. RAIN RFID**

# The Challenge:

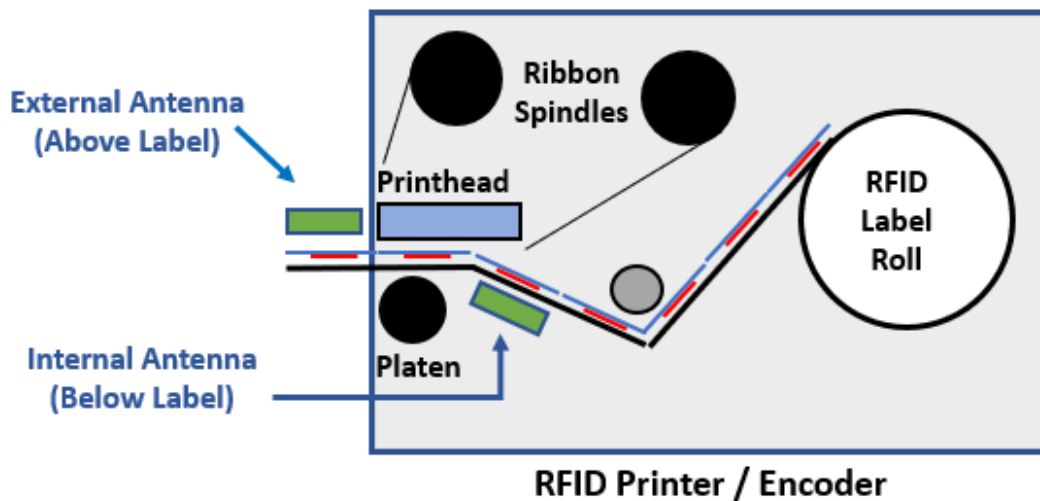
## A single printer for both smart labels and on-metals

- Customers want both capabilities from one printer
- Simple, fast media changes
- Wide variations in physical characteristics of media
- Without sacrificing speed



# T6000e Design and Construction

- Above-path encoding antenna
- Below-path encoding antenna
- Robust feed mechanisms and physical tolerances



# T6000e Configurations and Options

- 4" and 6" width models
- 203, 300 and 600 dpi (600 dpi with 4" only)
- Multiple RFID printer language emulations
- Media handling: cutter, peel/rewind, batch rewind
- Online Data Verifier (ODV)





# T6000e Advantages

- Both smart labels and on-metals with one printer
- Supports wide range of on-metals
- Simple, fast, precise RFID auto calibration
- Industry-leading speed
- Extensive configurations and options



# T6000e Advantages

- Support for high-memory chips\*
- Printronix System Architecture (PSA)
- Extensive data reporting functionality
- Dual-antennas for “problematic” inlays
- *RFID Printer and Label Validation Lab*



# T6000e in Action



- Standard smart labels



- Retail apparel – Service bureau



- Automotive manufacturing



- On-metal tags for metal assets

# RFID Printer Line-up



**T6000e**  
Enterprise-Level Industrial Printer



**T4000**  
Mid-Level Industrial Printer



**T800**  
Enterprise-Level Desktop Printer

Encoder	GS1 /EPCGlobal UHF Gen2	GS1 /EPCGlobal UHF Gen2	GS1 /EPCGlobal UHF Gen2
Antenna	Internal adjustable/External fixed	External fixed	Adjustable/Multi-position
Printer Languages	PGL, ZGL, STGL, MGL	PGL, ZGL, STGL, MGL	PGL, ZGL, STGL, MGL
Support Labels	Standard label/On-metal	Standard label/On-metal	Standard label
RFID Calibration	Automatic	Automatic	Automatic
Supported Chip (IC)/Inlays	Latest generation chips and inlays from leading manufacturers	Latest generation chips and inlays from leading manufacturers	Latest generation chips and inlays from leading manufacturers
RFID Data Validation	Full/partial overstrike, tracks good/bad labels	Full/partial overstrike, tracks good/bad labels	Full/partial overstrike, tracks good/bad labels
Print Resolution	203, 300, 600 dpi	203, 300 dpi	203, 300 dpi
Max. Print Speed	4": 14 ips @203 dpi, 12 ips @300 dpi, 6 ips @600 dpi 6": 12 ips @203 dpi, 10 ips @300 dpi	10 ips @203 dpi, 7 ips @300 dpi	8 ips @203 dpi, 6 ips @300 dpi
Max. Print Width	4.1", 6.55"	4.1"	4.1"
Media Handling	Cutter, Peel/Rewind, Full rewind	Cutter, Peel/Rewind	Cutter, Peeler
Communications	<b>Standard:</b> Ethernet, USB Host/Device, Serial <b>Optional:</b> Wi-Fi 802.11 a/b/g/n/ac, Parallel, GPIO	<b>Standard:</b> Ethernet, USB Host/Device, Serial <b>Optional:</b> Wi-Fi 802.11 a/b/g/n/ac, Bluetooth 4.2	<b>Standard:</b> Ethernet, USB Host/Device, Serial <b>Optional:</b> Wi-Fi 802.11 a/b/g/n/ac, Bluetooth 4.2



# Questions?

# Thank You

**TSC Auto ID** [tscprinters.com](https://tscprinters.com) | **Printronix Auto ID** [printronixautoid.com](https://printronixautoid.com)

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- You will need to be a registered user of [rfidjournal.com](https://rfidjournal.com) (it's free)



# Upcoming Online Events

## **Internet of Things Virtual Event 2020**

July 28, 2:00 to 4:00 PM

## **RFID in Retail And Apparel 2020**

August 18, 11:00 AM to 1:00 PM

## **STMicroelectronics's New Reader IC: Boosting Reader Performance to 800 Tags Per Second**

August 25, 2:00 PM to 3:00 PM



**THANK YOU**